5. Plan Administration

This chapter describes how the MAC Plan will be maintained and administered following its adoption by the RWMG. Included in this chapter are two separate but related sections: Plan Performance and Monitoring, and Data Management.

5.1. Plan Performance and Monitoring

Integrated Regional Water Management (IRWM) Plans must contain performance measures and monitoring methods to ensure the objectives of the Plan are met. This section should describe a method for evaluating and monitoring the RWMG's ability to meet the objectives and implement the projects in the IRWM Plan.

The intent of the Plan Performance and Monitoring section is to substantiate that the MAC Region: is efficiently making progress towards meeting the MAC Plan objectives, is implementing projects listed in the plan, and is ensuring that each project in the MAC Plan is monitored to comply with all applicable rules, laws, and permit requirements. This chapter describes the general process that will be employed to track MAC Plan performance and to monitor progress being made to implement the projects contained in this plan.

5.1.1. Tracking and Reporting MAC Plan Performance

A MAC Plan Performance Review will be conducted, at a minimum, every three years (or as deemed appropriate by the RWMG when funding is available) to evaluate progress made toward achieving Plan objectives. The Plan Performance Review will be administered by the RWMG and supported by the RPC or, at its discretion, by a subcommittee of the RPC.

Two tables will be generated with each Plan Performance Review: one that addresses the extent to which the MAC Plan's objectives have been met, and one that describes progress made in implementing the projects listed in the MAC Plan. The first table, which will be entitled 'Progress Toward Achieving Plan Objectives', will report the performance measure data collected and submitted by the reporting agencies for each of the MAC Plan objectives listed in Chapter 3.

The second table, which will be entitled 'Status of Project Implementation" will list all of the projects in Chapter 4 of the MAC Plan, their implementation status, and funding source. Projects that have been fully implemented will be highlighted separately.

Templates of these tables are provided below.

Table 5-1: Example Reporting Template: Progress toward Achieving Plan Objectives[1]

Goal: Reduce sources of contaminants.		
Objectives	Performance Measures	Monitoring/Reporting Result
Reduce abandoned mine flows and sediments.	Number of mines known to cause water quality issues for which remedial actions are implemented. Abandoned mines are defined as those in the Office of Mine Reclamation database plus other locally known mines.	
Reduce leakage from septic systems.	Number of problem septic systems identified; number of problem septic systems corrected; number of problem septic systems eliminated	
Increase bulky waste pickup programs, avoid illegal dumping, and increase collection of illegally dumped trash.	Number of new bulky waste pickup dates; estimated tons of illegal waste picked up; number of campaigns or other measures undertaken to stop illegal dumping.	
Identify informal recreation and camping sites with recurring waste issues and initiate remedial actions.	Number of identified problem sites; number of identified sites for which remedial actions are initiated.	

[1] This template includes the performance measures to be reported on for Policy 1, Goal 1 only. Similar tables will be prepared and completed for the remaining goals under Policy 1, as well as Policies 2 – 4, as part of the MAC Plan Performance Review.

Goal: Reduce sources of contaminants.		
Manage fire fuels to reduce wildfire impacts.	Number of acres on which fire fuel reduction measures are implemented.	
Increase public awareness of how contaminated water resources affect quality of life and public health.	Number of school classrooms, articles in local newspapers and water agency newsletters, and other programs that receive water quality-related curriculum.	
Track increase of small county-monitored water systems.	Number of small water supply systems monitored annually by the counties.	

Table 5-2: Example Reporting Template: Status of Project Implementation

	Proponent	Project	Status of Project Implementation
1	AWA	CAWP & AWS Intertie	
2	AWA	CAWP Gravity Supply Line	
3	AWA	Treated Water to Residents Using Untreated Water	
4	AWA	Lake Camanche Wastewater Improvement Program	
5	AWA	Small Diameter Pipeline Raw Water Canal to Pipe Conversion Project	
7	AWA	AWS Regional Water Treatment Plant	
8	AWA	Lower Amador Canal Project	
9	AWA	Backwash Water Reuse Project	
10	AWA	CAWP Fire Storage	
11	AWA	Highway 88 Corridor Wastewater Treatment, Transportation, Disposal	
13	AWA	Regional Wastewater Project	
14	AWA	New York Ranch Reservoir Conservation and Management	
15	AWA	AWA Low Pressure Flow Improvements	
16	AWA	Lake Camanche Water Storage Tank & Transmission Main	
17	AWA	Lake Camanche Water Service Replacement-Phase II	
19	AWA	Wildwood Leachfield Replacement	
20	AWA	Bear River Reservoir Expansion Project	
21	UMRWA	Septic System Management Program	
22	CCWD	Leak Testing and Repair Program	
23	CCWD	New Hogan Reservoir Pumping Project	

	Proponent	Project	Status of Project Implementation
24	CCWD	New Hogan Phase II Water Distribution Loop Project	
25	CCWD	Sheep Ranch WTP Compliance Project	
26	AWA-CCWD-EBMUD	Camanche Area Regional Water Supply Project	
27	CCWD	West Point WTP Drinking Water Compliance Project	
28	Foothill Conservancy	East Panther Creek Restoration Project	
29	Foothill Conservancy	Restoring the Upper Mokelumne's Anadromous Fish	
30	Foothill Conservancy	Amador Household Water Efficiency Project	
31	Stanislaus National Forest, Calaveras Ranger District	Hemlock Landscape Restoration	
32	City of Jackson	City of Jackson Wastewater Treatment and Disposal Project	
33	Calaveras County Administrative Office	Ponderosa Way Restoration Project	
34	AWA	Ione Clearwell Cover Replacement	
35	AWA	CAWP Tanks Replacement Project	
36	AWA	Camanche Wastewater System Improvements	
37	AWA	CAWP Retail Distribution Domestic and Fire Protection Improvements	
38	AWA	CAWP Disinfection By-Product Reduction Project	

5.1.2. Project-Specific Data Collection and Monitoring Plans

Proponents of projects implemented as part of the MAC Region IRWM Program will be required to develop project-specific monitoring plans prior to or in conjunction with project implementation. Project proponents will be responsible for collecting the data consistent with MAC Plan requirements for compatibility with statewide databases, performing the monitoring activities, validating the data consistent with MAC Plan requirements for compatibility with statewide databases, and reporting both to UMRWA and to appropriate state databases. For projects that receive implementation grant funding from DWR, UMRWA (as the RWMG) will act as the overseeing entity, ensuring that each project proponent prepares its project-specific monitoring plan(s) and implements the plan(s) accordingly. Monitoring plans will include schedules with an estimated timeline of monitoring activities, which UMRWA will use as a guideline for overall program implementation. Data collected and analyses performed as part of the performance monitoring plans will be reported to UMRWA and appropriate statewide databases on a quarterly basis, along with required documentation and an evaluation of project performance. This will help ensure that implemented projects fulfill MAC Plan objectives as originally intended.

Project-specific monitoring plan requirements will vary based on the type of project being implemented. All projects must adhere to appropriate State guidelines for monitoring, depending upon the type of data being collected, in order to be implemented through the IRWM Plan. These include:

- Projects that involve surface water quality must meet the criteria for and be compatible with SWAMP, http://www.waterboards.ca.gov/water_issues/programs/swamp/tools.shtml).
- All projects that involve groundwater quality must meet the criteria for and be compatible with GAMA, http://www.waterboards.ca.gov/gama/).
- All projects that involve wetland restoration must meet the criteria for and be compatible with the State Wetland and Riparian Area Monitoring Plan (WRAMP, http://www.waterboards.ca.gov/mywaterquality/monitoring_council/wetland_workgroup/docs/2010/tenetsprogram.pdf)

All project-specific monitoring plans must include the following:

1) A table describing what is being monitored for the project (e.g. water quality, water depth, flood frequency), and effects the project may have on habitat or particular species (before and after construction).
2) Measures to remedy or react to problems encountered during monitoring.
3) Location of monitoring.
4) Monitoring frequency.
5) Monitoring protocols/methodologies and quality assurance and quality control (QA/QC) procedures, including who will perform the monitoring.
6) A description of how those monitoring protocols / methodologies and QA / QC procedures are consistent with requirements for applicable statewide databases including SWAMP, GAMA, and WRAMP)
7) An identified data management system (DMS) that will be used or procedures to keep track of what is monitored.
8) Procedures and a schedule for incorporating collected data into statewide database(s).
9) Procedures and a schedule for reporting to UMRWA confirmation of data submittal to appropriate statewide database(s).

10) Procedures to ensure the monitoring schedule is maintained and that adequate funding is available to maintain monitoring of the project throughout the scheduled monitoring timeframe

The project sponsor will be responsible for completed data collection in accordance with the approved project-specific monitoring plan, which will clearly identify monitoring and analytical techniques and QA/QC procedures to be implemented, and will describe how those techniques are compatible with the requirements of appropriate statewide database(s). The individual project sponsor will be responsible for reviewing the data collection and QA/QC protocols to validate that data was collected in accordance with QA/QC procedures required as part of the project monitoring program. In addition, project proponents will be responsible for "spot-checking" all data for accuracy at the time of entry to the database to identify any apparent errors. Once data collection and QA/QC has been complete in accordance with provisions of the approved project-specific monitoring plan, the project sponsor will submit the compatible data to the appropriate statewide database, as well as to UMRWA for inclusion in the Region's centralized data management system (DMS). The project sponsor will also provide UMRWA with confirmation that the data has been submitted to the appropriate statewide database.

UMRWA will maintain a centralized DMS on the UMRWA electronic file system, which will house all original data provided by project sponsors. The data will be maintained by UMRWA and copies of all data will be available to stakeholders and members of the public through the MAC IRWMP website. Data management is discussed in greater detail in the following section.

5.1.3. Using the Information Collected

The Plan Performance Review process will include an adaptive management component which will allow the RWMG to respond to lessons learned from analyzing collected performance measure and project monitoring data. With this information, the RWMG, through the RPC, may consider modifying IRWM Plan objectives, performance measures, the applicability of selected resource management strategies, and the project review and prioritization process. These actions may in turn determine the types of projects that will be selected and implemented in the future.

Local agencies implementing projects as part of IRWM Plan implementation will monitor for the parameters identified in order to identify when their projects may not be fulfilling their objectives. This information will be fed back into the project's decision-making structure to adapt the project to better meet its overall objectives. Only by consistent monitoring and analysis can projects successfully achieve their objectives. Monitoring will also provide a clear reporting mechanism for the public, decision-makers, and regional planners to determine the planned versus actual value of the project. Whenever the MAC Plan is updated in the future and regional objectives are revisited, the RPC will discuss and evaluate the MAC Plan Update implementation. The results of project-specific monitoring efforts will be utilized to identify areas where Plan implementation may need to be modified to best achieve Plan objectives moving forward.

For those projects included in this IRWMP that may be implemented independently from the MAC Region IRWM Program, project sponsors will be encouraged to prepare and administer project-specific monitoring plans that are generally consistent with the monitoring plans described above. During the Plan Performance Review, the RWMG will assess the extent to which the MAC Plan's objectives have been met, based on the projects and programs completed throughout the Region. In this way, progress made toward achieving Plan objectives by projects implemented outside of the IRWM Program will be assimilated into the Plan Performance Review, though specific monitoring data may not be made available by project sponsors to the centralized DMS.

5.2. Data Management

The Integrated Regional Water Management (IRWM) Plan must describe the process of data collection, storage and dissemination to IRWM participants, stakeholders, the public, and the State.

Data includes technical information such as design submittals, feasibility studies, reports, and any information gathered for a project in any phase of development (i.e. planning, design, construction, operation, and monitoring).

The Data Management section is intended to ensure the efficient use of available data, describe stakeholder access to data, and ensure the data generated by IRWM implementation activities can be integrated into existing State databases.

To this end, the MAC Plan Update has established standard data management documentation practices for IRWM Plan projects and programs that are required to be followed for projects and programs implemented as part of the IRWM program. Projects and programs implemented outside of the IRWM Program are encouraged to follow similar protocols to maximize usefulness and compatibility of data collected throughout the region, and to improve potential integration into statewide databases. The data proposed to be collected and anticipated reporting procedures are presented in the sections below. For the purposes of this plan, the term data refers to and includes technical documentation (such as designs, feasibility studies, and reports), as well as technical information collected as part of project or program planning, design, implementation, and operation.

5.2.1. MAC Region Data Needs

Throughout the MAC Region, a variety of local, state and federal agencies and non-governmental organizations collect valuable water quality data, but that data is not assembled in a uniform or collaborative manner, and in many cases is neither compatible nor comparable. Much of the data that is collected is program-specific with limited applicability region-wide. The MAC Region's IRWM planning process can help facilitate better information sharing and identify data needed by the region's agencies and organizations, project proponents, and stakeholders to more efficiently analyze and understand water quality and environmental conditions within the region.

Procedural data needs in the MAC Region include the following.

- Uniform data management protocols for MAC Plan projects to allow broader sharing and comparability
- Centralized data management to provide a means for addressing regional questions about the condition of water resources in the region.

In addition, the the following data needs that are broadly applicable to the MAC Region were identified through the Upper Mokelumne River Watershed Assessment and Planning Project and RPC discussions conducted as part of the MAC Plan Update.

- Water quality, temperature, and streamflow monitoring data throughout the Region to assist in tracking water quality trends.
- Information on non-water quality related watershed conditions.

- Additional information on the location and extent of septic system-related water quality issues in the Region.
- Project specific information, such as project financing solutions

5.2.2. Data Collection Techniques

Data associated with the design and implementation of projects included in the MAC Plan Update will depend upon project type, but may include streamflow, surface water deliveries, groundwater elevations, groundwater pumping, precipitation, water demand, locations and sizes of water-related facilities, political and agency boundaries, land use, contaminant plume location and extent, water quality data, locations of sensitive habitats and species, and hydrogeologic and hydrologic data. These data will be collected from various federal, state, and local sources, some of which are shown in Table 5-3. Data may also be developed by project sponsors using numerical models such as HEC, H2ONet, and various hydraulic and hydrologic models. Working with the project sponsors, the agencies shown in Table 5-3, and regional stakeholders, the MAC IRWM Program will continue to search for data relevant to the MAC IRWM resource management strategies on an ongoing basis. Any identified data gaps will be filled through the identification of new data sources or new or expanded monitoring activities.

Table 5-3: Sources of IRWMP Data

Federal	State	Local
National Climate Data Center	California Irrigation Management Information System (CIMIS)	Amador County
National Resource Conservation District	Department of Fish & Game	Alpine County
Army Corps of Engineers	Department of Public Health	Calaveras County
Bureau of Reclamation	Department of water Resources	City Planning Departments
U.S. Fish & Wildlife Service	State Water Resources Control Board & the Regional Water Quality Control Board	Upper Mokelumne River Watershed Council
U.S. Geologic Survey	California Natural Diversity Database	Northeastern San Joaquin Groundwater Banking Authority
National Marine Fisheries Service	California Department of Pesticide Regulation	Mokelumne, Calaveras, and Cosumnes River Water Purveyors
U.S. Environmental Protection Agency		Stakeholders
The Nature Conservancy		
U.S. Forest Service		

Data collected in conjunction with MAC Plan implementation projects will vary based on the type and scope of each individual project. Table 5-4 outlines the types of data expected to be collected by project type. These data will include, at a minimum, data relevant to surface water, groundwater, water quality, stormwater, and ecosystem restoration.

Table 5-4: Data to be Collected through IRWM Project Implementation

Data Type	Project Type					
	Water Supply	Recycled Water	Water Quality	Stormwater and Flood Management	Ecosystem Restoration	Groundwater Management
Stream & River Flows	X		X		X	
Stream & River Water Quality	X	X	X	X	X	
Locations of Sensitive Habitats & Species			X		X	
Surface Water Deliveries	X		X			X
Groundwater Pumping	X		X			X
Hydrogeologic						X
Precipitation	X		X	X		X
Water Demand	X	X				X
Water Related Facilities	X	X	X	X		X
Political and Agency Boundaries	X	X	X	X	X	X
Land Use	X	X	X	X	X	X
Contaminant Plume Locations and Extents	X		X			X

As described in Section 5.1 Plan Performance and Monitoring, MAC Region project proponents implementing projects through the IRWM Program will be required to prepare project-specific monitoring plans that adhere to the data collection techniques and procedures established by the following statewide programs. This will ensure compatibility of data among projects implemented through the IRWM Program, as well as compatibility with relevant statewide databases.

SWAMP: Typical data collection techniques for surface waters include both field measurements and laboratory analysis. Field measurements are either collected using meters or field kits for a common list of constituents including but not limited to: water temperature, pH, conductivity, dissolved oxygen and turbidity. For an example of a field data sheet and complete list of SWAMP-required fields go to: http://swamp.mpsl.mlml.calstate.edu/wp-content/uploads/2009/04/swamp_sop_field_measures_water_sediment_collection_v1_0.pdf.

There is a large list of possible constituents that are measured in surface waters that require laboratory analysis. Typical laboratory analysis includes fecal indicator bacteria, metals, nutrients, persistent organic pollutants, and turbidity. SWAMP provides guidance on methods and quality assurance. This guidance can be found at:

http://www.waterboards.ca.gov/water_issues/programs/swamp/docs/qapp/qaprp082209.pdf.

Biological monitoring is helpful for determining the health of a system and whether it is able to sustain a diverse community of benthic macro invertebrates. Standard operating procedures for determining a stream's physical/habitat condition and benthic invertebrate assemblages can be found at:

http://swamp.mpsl.mlml.calstate.edu/wp-content/uploads/2009/04/swamp_sop_bioassessment_collection_020107.pdf.

Projects collecting surface water data will be required to adhere to the SWAMP data collection protocols.

GAMA: The GAMA Priority Basin Project is grouped into 35 groundwater basin groups called "study units." Each study unit is sampled for common contaminants regulated by the California Department of Public Health (CDPH), and also for unregulated chemicals. Testing for these chemicals—usually at detection levels well below those achieved by most laboratories—will help public and private groundwater users to manage this resource. Results from the Northern San Joaquin study unit, which includes the western-most portion of the MAC Region (Amador and Calaveras Counties), can be found at http://pubs.usgs.gov/fs/2011/3089/. Some of the chemical constituents that are sampled by the GAMA Priority Basin Project include:

- Low-level volatile organic compounds (VOCs)
- Low-level pesticides
- Stable isotopes of oxygen, hydrogen, and carbon
- Emerging contaminants (pharmaceuticals, perchlorate, chromium VI, and other chemicals)
- Trace metals (arsenic, selenium, lead, and other metals)
- Radon, radium, and gross alpha/beta radioactivity
- General ions (calcium, magnesium, fluoride)
- Nutrients, including nitrate, and phosphates
- Bacteria: total and fecal coliform bacteria

Projects collecting groundwater data will be required to adhere to GAMA data collection protocols.

WRAMP: The WRAMP is intended to track trends in wetland extent and condition to determine the performance of wetland, stream, and riparian protection programs in California. The program defines standardized assessment methods and data management with the goal of minimizing new costs and maximizing public access to assessment information. Additional information on the WRAMP program can be found at the following location http://www.waterboards.ca.gov/mywaterquality/monitoring_council/wetland_workgroup/docs/2010/tenetsprogram.pdf

All projects that involve wetland restoration must meet the criteria for and be compatible with the State Wetland and Riparian Area Monitoring Plan.

As described in Section 5.1 Plan Performance and Monitoring, individual project sponsors will be responsible for collecting data in accordance with the approved project-specific monitoring plan, which will clearly identify monitoring and analytical techniques and QA/QC procedures to be implemented, and will describe how those techniques are compatible with the requirements of appropriate statewide database(s). The individual project sponsor will be responsible for reviewing the data collection and QA/QC protocols to validate that data was collected in accordance with QA/QC procedures required as part of the project monitoring program. In addition, project proponents will be responsible for "spot-checking" all data for accuracy at the time of entry to the database to identify any apparent errors. Once data collection and QA/QC has been complete in accordance with provisions of the approved project-

specific monitoring plan, the project sponsor will submit the compatible data to the appropriate statewide database, as well as to UMRWA for inclusion in the Region's centralized data management system (DMS). The project sponsor will also provide UMRWA with confirmation that the data has been submitted to the appropriate statewide database.

5.2.3. Existing Monitoring Efforts

There are several ongoing monitoring efforts within the region that may generate information useful to the IRWM planning program, including those by the US Forest Service, EBMUD, PG&E, and others. For example, several programs are currently completing baseline mapping of vegetation and wildlife on the Mokelumne River, as well as historical and ongoing surveys of birds, amphibians, reptiles and small mammals. Additionally, Mokelumne River streamflows, water levels, and water quality monitoring are conducted on an ongoing basis. These efforts are being conducted to fulfill regulatory requirements or support watershed studies.

All agencies in the region providing water supply and water and wastewater treatment services are also conducting regulatory monitoring operations. As part of their regular operating procedures, these agencies conduct both influent and effluent water quality analyses.

5.2.1. The MAC Region DMS

UMRWA will maintain a centralized DMS on the EBMUD server, which will house all original data provided by project sponsors. The procedure for submitting data for inclusion in the DMS is as follows.

1. The project sponsor completes monitoring and data collection in accordance with the approved project-specific monitoring plan, including QA/QC procedures.
2. The project sponsor validates data consistent with data validation protocols outlined in the project-specific monitoring plan.
3. The project sponsor "spot-checks" data for accuracy at the time of entry to the database to identify any apparent errors.
4. The project sponsor submits the data to the appropriate statewide database.
5. The project sponsor submits the data to UMRWA for inclusion in the Region's centralized data management system (DMS).
6. The project sponsor provides UMRWA with confirmation that the data has been submitted to the appropriate statewide database.
7. UMRWA maintains the data in the centralized database.
8. UMRWA disseminates the data to stakeholders and members of the public through the MAC Plan webpage.

Data collected will be compatible with statewide databases because the project-specific monitoring plans will be developed based on guidance provided for applicable statewide database. While project sponsors will be responsible for submitting data to the appropriate statewide databases, UMRWA will be able to confirm that this has been done based on the confirmation of submittal required.

The DMS will serve the important function of assisting the RWMG in its goal to share collected data by requiring consistent methodologies for data collection and housing all data in a centralized location that is easily accessed by stakeholders and members of the public. In this way, the DMS assists the RWMG in accomplishing the objectives of improved data comparability and accessibility.

5.2.2. Data Dissemination

Data collection, review, and dissemination are activities that occur during both the MAC Plan update process, and subsequently during the implementation of the updated MAC Plan. During the update process data has been disseminated primarily via project-specific documentation and associated meetings, inter-agency collaboration on issues and projects of mutual interest, discussion at ongoing stakeholder/RPC and Authority meetings, and through website postings. Project proponents, RPC members, and IRWM planning participants are all jointly responsible for data dissemination. Coordination among regional members and other relevant agencies in the development of data has occurred for several specific projects (e.g. Raise Lower Bear Reservoir project, EBMUD's WSMP 2040) with data shared by and between the participating agencies. Collaboration between agency and stakeholder participants in the Upper Mokelumne River Watershed Assessment Project previously led to the development of a major water quality database which in turn supported the development of the WARMF (Watershed Assessment and Risk Management Framework) water quality model of the Upper Mokelumne watershed. UMRWA Board and committee meetings, and meetings of the RPC, have served as venues for sharing data on subjects ranging from climate change to public health dangers of swimming in certain local waters. Environmental documentation processes (i.e. CEQA and NEPA) have also allowed for dissemination of data developed for review by interested stakeholders and the public. These methods will continue to be employed.

As described previously, all data will be housed in a centralized DMS on the EBMUD server, maintained by UMRWA. All data collected will be made available to stakeholders and members of the public through the MAC IRWM webpage (http://www.umrwa.org/mac_documents.html). Hard copies and CDs may be available to interested parties without Internet access. Periodic updates of the MAC IRWMP will be distributed in a similar manner.

Dissemination of data to statewide programs administered by both the SWRCB and DWR will support statewide data needs. As described previously, individual project sponsors will be responsible for submitting data to the appropriate statewide database(s) consistent with the approved project-specific monitoring plan. UMRWA will confirm that this submittal has occurred based on the project sponsor's confirmation reporting.

In addition, MAC IRWM planning participants have supported statewide data needs in the past through voluntary participation, and will continue to do so in the future by making collected data available to programs such as the California Environmental Resources Evaluation System (CERES), Surface Water Ambient Monitoring Program (SWAMP), Groundwater Ambient Monitoring Assessment (GAMA) program, and the California Environmental Information Catalog (CEIC) when appropriate and feasible. Data will also be disseminated to DWR for inclusion in its databases, such as the Water Data Library (WDL), which contains groundwater level and water quality data. Finally, stakeholders, agencies, and the public may request all publicly available IRWMP data (i.e., non-proprietary and non-confidential) from any of the MOU signatories for this IRWMP.